

*Cometary Observations at the Liverpool Observatory, 1902-3. By W. E. Plummer.*

*Comet 1903 II. (1902 d), Giacobini.*

Greenwich Mean Time of Observation 1902.	★ R.A.		No. of Comp.	★ Decl.		No. of Comp.	App. Decl. of ☿	Log. Factor of Parallax in α.	Parallax in ′.	Star of Comp.
	h	m		°	′		°			
Dec. 3	12	10	6.2	—	1 20.38	Ret.	7 17 28.19	—	0.4801	1
6	11	43	16.0	+	54.33	...	7 16 36.35	—	0.5161	2
11	12	22	29.4	—	1 6.31	...	7 14 44.97	—	0.3188	3
11	12	22	29.4	+	1 44.01	...	7 14 44.83	—	0.3188	4
23	9	40	22.9	—	19.74	...	7 8 32.20	+	0.6097	5
1903 Jan. 16	8	40	5.2	—	34.35	...	6 51 37.31	—	0.5139	6
21	10	2	5.0	—	55.25	...	6 48 7.57	+	0.0253	7
23	9	21	6.3	+	14.49	...	6 46 50.64	—	0.2510	8
Feb. 17	9	0	13.2	+	9.69	...	6 36 44.40	+	0.6948	9
20	9	11	16.5	+	55.28	...	6 36 31.62	—	0.6861	10

*Comet 1903 I. (1903 a), Giacobini.*

Jan. 21	6	33	14.0	+	44.80	10	22 59 52.57	—	1 36.5	5	+	2 44 45.5	0.6070	0.8385	11
23	6	35	40.3	—	39.96	10	23 2 2.94	+	0 20.8	5	+	3 13 44.6	0.6191	0.8360	12
28	6	10	59.7	+	1 34.40	10	23 7 52.42	+	1 53.1	5	+	4 30 34.6	0.6029	0.8298	13
28	6	10	59.7	—	10.74	10	23 7 52.37	—	5 35.9	5	+	4 30 35.3	0.6029	0.8298	14
29	6	20	26.2	+	11.99	Ret.	23 9 7.74	+	0 57.7	Ret.	+	4 46 55.0	0.6274	0.8303	15

Greenwich Mean Time of Observation 1903.		* R.A.		No. of Comp.	Apparent R.A. of		* Decl.		No. of Comp.	App. Decl. of		Log. Factor of Parallax in $\alpha$ .	Factor of Parallax in $\delta$ .	Star of Comp.
h m s		h m s			h m s		' °			° ' "				
Feb.	3	6 32 19.1	+ 21.35	10	23 15 44.61		- 7 49.9		5	+ 6 12 38.3		0.6556	0.8267	16
	12	6 30 43.0	- 2 3.50	10	23 29 19.25		- 3 25.5		5	+ 9 5 37.6		0.6775	0.8184	17
	17	6 39 36.5	- 39.19	12	23 37 51.92		- 11 38.8		4	+ 10 52 12.5		0.6989	0.8169	18
	17	6 41 29.8	+ 18.72	12	23 37 52.04		+ 9 53.0		4	+ 10 52 14.8		0.7004	0.8172	19
	24	6 40 52.9	+ 2 14.39	10	23 51 1.30		+ 5 3.2		5	+ 13 29 57.3		0.7137	0.8120	20
Mar.	24	6 40 52.9	+ 1 41.54	10	23 51 1.27		- 7 30.8		5	+ 13 29 54.0		0.7137	0.8120	21
	6	6 41 16.0	+ 15.40	10	0 11 14.51		- 9 56.2		5	+ 16 51 32.5		0.7321	0.8054	22
	7	6 50 3.2	- 53.89	10	0 13 11.74		+ 2 27.7		5	+ 17 4 29.6		0.7363	0.8130	23
	10	6 50 0.4	- 3 21.51	10	0 18 35.73		+ 2 41.0		5	+ 17 24 40.0		0.7387	0.8147	24
	11	6 52 5.6	- 1 45.26	10	0 20 11.99		+ 1 25.1		5	+ 17 23 23.9		0.7390	0.8155	24
12		6 51 53.0	- 1 18.85	10	0 21 40.42		- 4 20.7		5	+ 17 16 59.3		0.7393	0.8168	25

Comet 1903 IV. (1903 c), Barreilly.

June	22	12 43 1.1	+ 45.90	12	21 51 55.20	+ 7 33.7	6	- 7 18 34.2	0.8698	26
	28	12 2 35.3	- 5.57	10	21 45 12.49	+ 7 42.2	4	- 0 55.28.7	0.8512	27
	28	12 2 35.3	+ 2 54.20	10	21 45 12.39	+ 2 48.2	4	- 0 55 28.4	0.8512	28
July	29	11 47 22.9	+ 1 33.21	8]	21 43 32.27	+ 3 41.5	4	+ 0 28 12.2	0.8575	29
	1	11 48 26.0	- 4 1.13	10	21 35 25.99	- 5 31.4	5	+ 3 41 36.7	0.8338	30
	7	11 10 46.9	- 2 22.22	10	21 18 19.09	+ 2 8.5	5	+ 18 5 2.3	0.7524	31
7		11 10 46.9	- 6.04	10	21 18 18.87	- 17 28.0	5	+ 18 5 6.9	0.7524	32

Greenwich Mean Time of Observation 1903.	* R.A. m s	No. of Comp.	Apparent R.A. of h m s	* Decl. ° ' "	No. of Comp.	App. Decl. of ° ' "	Log. Factor of Parallax in a.	Star of Comp.
July 10	10 40 16.3	8	20 58 15.93	+ 2 22.3	4	+ 29 9 18.0	- 0.6642	33
10	10 40 16.3	8	20 58 15.96	- 5 50.1	4	+ 29 9 18.4	- 0.6642	34
13	10 30 22.5	10	20 23 31.32	+ 3 55.1	5	+ 43 9 12.8	- 0.6733	35
15	9 40 14.2	8	19 45 10.23	+ 10 22.3	4	+ 52 58 55.7	- 0.7655	36
16	9 32 11.0	10	19 17 56.67	+ 4 25.2	5	+ 57 39 26.2	- 0.7624	37
22	10 5 20.8	10	14 37 39.60	- 4 4.0	5	+ 67 44 59.9	1.0170	38
24	9 42 16.0	8	13 30 17.97	- 2 20.7	4	+ 64 38 42.0	1.0334	39
26	9 40 46.4	10	12 47 8.17	- 24.1	5	+ 60 57 12.0	1.0177	40
26	9 40 46.4	10	12 47 8.50	+ 6 9.5	5	+ 60 57 13.6	1.0177	41
28	9 32 19.0	12	12 18 54.25	- 5 21.4	4	+ 57 25 47.2	0.9847	42
28	9 31 26.3	10	12 18 53.97	+ 6 48.4	4	+ 57 25 49.3	0.9847	43
29	9 21 11.2	8	12 8 17.40	- 11 45.4	4	+ 55 48 32.9	0.9674	44
Aug. 3	9 16 15.0	10	11 32 59.56	+ 55.3	5	+ 49 0 36.3	0.9039	45
4	9 29 20.9	10	11 27 59.62	- 9 11.6	5	+ 47 52 7.8	0.8897	46
4	9 29 20.9	10	11 27 59.54	+ 5 22.1	5	+ 47 52 7.9	0.8897	47
6	9 18 26.3	12	11 19 15.50	+ 4 1.0	5	+ 45 47 9.7	0.8689	48
9	9 19 59.0	10	11 7 59.71	- 50.6	5	+ 42 57 48.9	0.8377	49
10	9 24 30.4	8	11 4 32.96	- 4 14.2	4	+ 42 4 44.0	0.8239	50
12	9 16 28.3	10	10 58 0.62	+ 3 3.4	5	+ 40 22 7.4	0.8080	51

Stars of Comparison. Comet 1903 II.

Date. 1902.	Star's Designation or Authority for Place.	Mean R.A. Equinox of Year. h m s	Correction to Mean R.A. s	Mean Declination Equinox of Year. ° ' "	Correction to Mean Declination.	No. of Refer- ence.
Dec. 3	A.G.Z. Nicolajew, No. 2150	7 18 44.33	+4.24	- 1 52 59.3	-12.4	1
6	A.G.Z. " No. 2132	7 15 37.70	+4.32	- 1 24 49.1	-12.8	2
11	A.G.Z. " No. 2134	7 15 46.84	+4.44	- 0 39 51.9	-13.8	3
11	Göttingen <sub>2</sub> , No. 2436-7 ...	7 12 56.37	+4.45	- 0 40 47.2	-13.7	4
23	A.G.Z. Albany No. 2688	7 8 47.19	+4.75	+ 1 40 29.0	-15.7	5
1903. Jan. 16	A.G.Z. Leipzig II., No. 3378	6 52 9.74	+1.92	+ 8 34 35.1	-12.6	6
21	A.G.Z. Leipzig I., No. 2571	6 49 0.89	+1.93	+10 10 3.9	-12.7	7
23	A.G.Z. Leipzig I., No. 2542	6 46 34.21	+1.94	+10 54 52.3	-12.7	8
Feb. 17	A.G.Z. Berlin A., No. 2328	6 36 32.87	+1.84	+18 52 44.4	-11.3	9
20	A.G.Z. Berlin A., No. 2318	6 35 34.54	+1.80	+20 3 24.7	-10.9	10

Comet 1903 a.

Jan. 21	A.G.Z. Albany, No. 7960	22 59 8.05	-0.28	+ 2 46 19.2	+ 2.8	11
23	A.G.Z. " No. 7979	23 2 43.18	-0.28	+ 3 13 21.2	+ 2.6	12
28	A.G.Z. " No. 8002	23 6 18.30	-0.28	+ 4 28 39.1	+ 2.4	13
28	A.G.Z. " No. 8010	23 8 3.39	-0.28	+ 4 36 8.8	+ 2.4	14
29	A.G.Z. " No. 8019	23 8 56.03	-0.28	+ 4 45 55.0	+ 2.3	15
Feb. 3	A.G.Z. Leipzig II., No. 11610	23 15 23.53	-0.27	+ 6 20 26.2	+ 2.0	16

Date. 1903.	Star's Designation or Authority for Place.	Mean R.A. Equinox of Year. h m s	Correction to Mean R.A. s	Mean Declination Equinox of Year. ° ' "	Correction to Mean Declination.	No. of Refer- ence.
Feb. 12	A.G.Z. Leipzig II., No. 11703	23 31 22.99	-0.24	+ 9 9 1.8	+ 1.3	17
17	Runkel, No. 11503	23 38 31.33	-0.22	+ 11 3 50.2	+ 1.1	18
17	A.G.Z. Leipzig I., No. 9407	23 37 33.55	-0.23	+ 10 42 20.7	+ 1.1	19
24	A.G.Z. " No. 9476	23 48 47.11	-0.20	+ 13 24 53.5	+ 0.6	20
24	A.G.Z. " No. 9482	23 49 19.93	-0.20	+ 13 37 24.2	+ 0.6	21
Mar. 6	A.G.Z. Berlin A, No. 47...	0 10 59.26	-0.15	+ 17 1 28.9	- 0.2	22
7	A.G.Z. " No. 65...	0 14 5.78	-0.15	+ 17 2 2.2	- 0.3	23
10	A.G.Z. " No. 100	0 21 57.38	-0.14	+ 17 21 59.6	- 0.6	24
11	" " "	...	-0.13	...	- 0.8	24
12	A.G.Z. " No. 109	0 22 59.40	-0.13	+ 17 21 20.9	- 0.9	25

Stars of Comparison. Comet 1903 IV.

Date. 1903.	Star's Designation or Authority for Place.	Mean R.A. Equinox 1903. h m s	Correction to Mean R.A. s	Mean Declination Equinox, 1903. ° ' "	Correction to Mean Declination.	No. of Refer- ence.
June 22	A.G.Z. Ottak., 85, 166	21 51 6.90	+2.40	- 7 26 24.6	+ 16.7	26
21	A.G.Z. Nicolajew, No. 5517	21 45 15.46	+2.60	- 1 3 26.8	+ 15.9	27
21	" " No. 5512	21 42 15.59	+2.60	- 0 58 32.5	+ 15.9	28
29	" " No. 5510	21 41 56.42	+2.64	+ 0 24 14.8	+ 15.9	29
July 1	A.G.Z. Albany, No. 7590	21 39 24.41	+2.71	+ 3 46 52.9	+ 15.2	30
7	A.G.Z. Berlin A, No. 8737	21 20 38.35	+2.96	+ 18 2 40.3	+ 13.5	31

Date. 1903.	Star's Designation or Authority for Place.	Mean R.A. Equinox 1903. h m s	Correction to Mean R.A. s	Mean Declination Equinox, 1903. ° ' "	Correction to Mean Declination.	No. of Refer- ence.
July 7	A.G.Z. Berlin A., No. 8720 ...	21 18 21.94	+2.97	+18 12 21.4	+13.5	32
10	A.G.Z. Camb., Eng., No. 12034 ...	20 58 23.48	+3.14	+29 6 43.0	+12.7	33
10	" " " No. 12017 ...	20 57 37.18	+3.15	+29 14 55.8	+12.7	34
13	A.G.Z. Bonn, No. 14257 ...	20 24 53.59	+3.38	+43 5 4.8	+12.9	35
15	A.G.Z. Camb., U.S.A., No. 6218 ...	19 46 44.03	+3.52	+52 48 19.2	+14.2	36
16	A.G.Z. Hels. No. 10424... ..	19 19 39.27	+3.55	+57 34 45.6	+15.4	37
22	A.G.Z. Christiania, No. 2207 ...	14 46 41.10	+0.33	+67 48 47.7	+16.2	38
24	A.G.Z. Hels. No. 7596 & Chris. No. 2013	13 26 37.40	-0.31	+64 40 51.3	+11.4	39
26	A.G.Z. Hels. Gotha, No. 7329 ...	12 45 55.34	-0.31	+60 57 28.3	+7.8	40
26	" " " No. 7318 ...	12 44 25.91	-0.31	+60 50 56.5	+7.6	41
28	" " " No. 7120 ...	12 16 37.75	-0.24	+57 31 3.7	+4.9	42
28	" " " No. 7156 ...	12 20 24.87	-0.21	+57 18 55.7	+5.2	43
29	" " " No. 7030 ...	12 3 15.74	-0.20	+56 0 14.8	+3.5	44
Aug. 3	" Bonn, No. 8110 ...	11 30 4.15	+0.06	+48 59 41.6	-0.6	45
4	" " No. 8099 ...	11 28 19.52	+0.09	+48 1 20.4	-1.0	46
	" " No. 8072 ...	11 28 1.47	+0.10	+47 46 47.1	-1.3	47
6	" " No. 8036 ...	11 22 32.46	+0.17	+45 43 10.7	-2.0	48
9	" " No. 7956 ...	11 10 28.67	+0.25	+42 58 43.1	-3.6	49
10	Differenced from Bonn, No. 7966	11 11 32.19	+0.27	+42 15 7.9	-3.7	50
12	A.G.Z. Bonn, No. 7891 ...	11 0 42.93	+0.33	+40 19 9.0	-5.0	51